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# NAVY MEDICINE

March-April 1999





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## A Look Back

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**COVER:** Last fall Hurricane Mitch devastated large areas of Central America and the Navy pitched in to help with the recovery. LT Richard Ericson, MSC, a member of Navy Environmental and Preventive Medicine Unit-2 (NEPMU-2), prepares samples from a Nicaraguan well for shipment back to the United States for evaluation. Story on page 2. Photo by Earl Hicks, BUMED Public Affairs.



# New Procedure Opening Navy's Eyes

Seeing is believing. Just ask CDR Steven Schallhorn, MC, a rising star among those who proudly wear the Trident, Wings of Gold, or Dolphins. In his pristine workspaces at Naval Medical Center San Diego, CA, he and other health care providers in the Department of Ophthalmology improve the lives of Sailors, Soldiers, and Airmen whose jobs place them in extreme conditions—places where mud, high G forces, and hostile operating environments make wearing glasses and contacts almost impossible.

Schallhorn, an ophthalmologist, has been working with Navy SEALs, aviators, submariners, and others who could benefit from PRK (photorefractive keratectomy), a procedure that improves vision through laser surgery.

PRK uses a computerized laser to make microscopic changes to the eye's structure, allowing for clearer distance vision in nearsighted individuals. According to Schallhorn, "The effectiveness of PRK shows that between 85 and 98 percent of patients see vision improve to 20/40 and up to 75 percent will achieve 20/20 uncorrected vision."

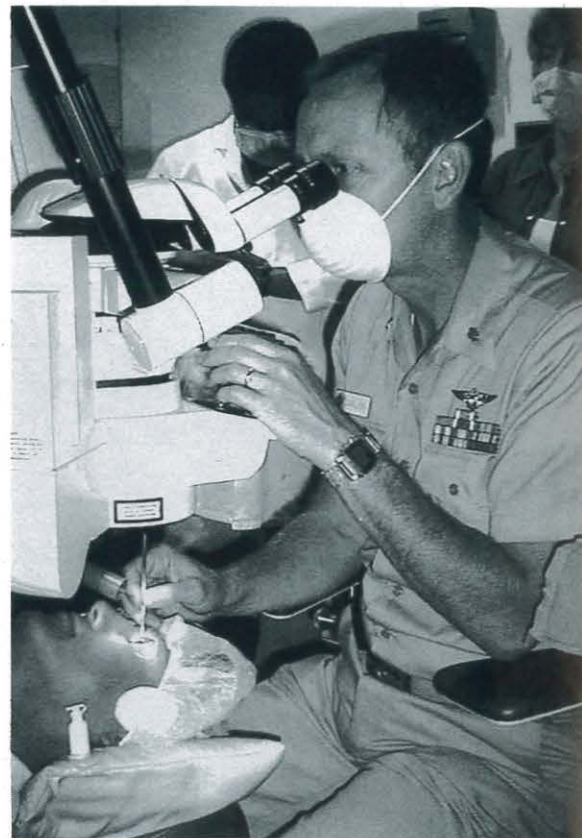
Civilians who have already undergone PRK may find themselves on the outside looking in if they want to join the military. Military policy normally excludes PRK recipients from signing

on the dotted line, allowing them to serve. A recent change for the Navy has allowed service entry if certain stringent criteria are met, such as a 1-year wait after the procedure. But even active duty personnel, who have undergone PRK, may find they cannot get into certain warfare specialties such as aviation. However, change is in the air.

Schallhorn recently presented a brief to the Naval Strike Air Warfare Center at NAS Fallon, NV, where the famous TOPGUN and other training units reside. The cutting edge of naval aviation is interested in implementing the cutting edge of medicine to improve aircrew vision and increase survivability of aircrew and aircraft.

The Navy's SEALs, who operate in the most extreme conditions, have worked with Schallhorn and staff to demonstrate how their community can use PRK safely and effectively. Saltwater, sand, mud, brush, and other environmental elements can make wearing eyeglasses difficult, at best. Contacts fare no better in field conditions. In addition, the use of night vision goggles and biologic/chemical hazard suits precludes easy use of eyeglasses.

"The potential for implementation of PRK in special warfare, as well as the other communities, is good," according to Schallhorn. "Previous and



CDR Schallhorn performs PRK on a naval aviator at Naval Medical Center San Diego.

current studies indicate that PRK should improve readiness," he added.

There are some potential drawbacks to PRK. As with any surgery, there is the possibility, however remote, of scarring or infection. With PRK, some patients have reported difficulty with night vision or with a halo effect around lights at night. These problems typically resolve with time. □

—Story by Doug Sayers, Naval Medical Center San Diego, CA. Photo by JO1 Joe Parker.



# Preventive Medicine Teams Keep Support Effort Successful



Farmers can travel to market, children get to school, and families attend church on new roads and bridges. Orphanages distribute donated clothes and food, and citizens of small villages drink from uncontaminated wells as American support continues for the Hurricane Mitch recovery effort in Central America.

Often unrecognized contributors to successful American military support, Navy preventive medicine teams often work behind the scenes. Throughout Nicaragua, Honduras, and El Sal-

Above: HMCS Barry Mullen (left), enlisted leader for the NEPMU-2 detachment in Estelle, Nicaragua, discusses ongoing preventive medicine activities with CAPT Richard Buck (center), Navy Environmental Health Center commanding officer, and Command Master Chief Eric Hanson. Right: Team leader of the San Isidro detachment, LCDR Mark Malakooti (second from left), joined CAPT Buck and LTCOL Lynn A. Collyar, commanding officer of the Army's Logistics Task Force 189 and commanding officer of the camp, in the serving line for a Christmas Day meal. Preventive medicine team members were finally able to join the chow line after completing a number of inspections that made the meal possible. From right: HMCS Mullen, HM3 Garth Gumienny, and HM2 Gene Colvin.





vador, Navy Environmental and Preventive Medicine and Disease Vector Ecology and Control Center (DVECC) Units ensure that Marines, Soldiers, and Airmen continue their missions by avoiding disease from contaminated water sources, disease-carrying insects, and unsanitary food.

Christmas Day 1998 was almost just another workday for the preventive medicine team of Navy Environmental and Preventive Medicine Unit-2 (NEPMU-2), part of Joint Task Force Aguila, whose assistance theme is "People Helping People." In their Nicaragua sites at Managua, San Isidro, Wiwili, and Esteli, NEPMU-2 and DVECC, Bangor, WA, personnel continued their support for Army and Marine Corps units building roads and bridges lost during the storm-created mud slides and floods.

On this special day at San Isidro, Navy environmental health officers and preventive medicine technicians celebrated by inspecting food preparation areas, spraying for mosquitoes, training troops to dispose of refuse, preparing sanitation reports, and taking water samples. And though most of the troops were experiencing a rare day off, it was still the task of team leader LCDR Mark Malakooti and the rest of his San Isidro team to make the holiday enjoyable for the Army's Logistics Task Force 189 troops.

It's an old story according to Navy Environmental Health Center's Commanding Officer, CAPT Richard Buck, MC. The various NEPMU and DVECC units comprise the Navy Environmental Health Center whose home office is in Norfolk, VA.

"As is usually the case, the preventive medicine teams have to go in first and help establish the camp," he said, "so they do not have the advantage of a well-established facility with all the amenities. It is heartening to see the superb job they are doing at San Isidro,

Estili, and Managuanot not only on Christmas Day, today, but every day."

As American troops arrive in Central America, Navy preventive medicine teams, such as NEPMU-2 in Nicaragua and El Salvador, and NEPMU-5 in Honduras, contribute to the readiness of Marines, Soldiers, and Airmen by showing them how to apply proper hygiene and sanitary practices within their mess facilities and living quarters. The preventive medicine teams also inspect their water sources, spray for disease-carrying



HM1 Wayne Rudolph (kneeling) of the NEPMU-2 detachment in Managua, Nicaragua, assists Nicaraguan Air Force Officer's Club pool manager, Isidro Gutierrez, in performing several quality checks of the pool water. Members of the Army's 32nd Medical Logistics Command from Ft. Bragg, NC, look on.



## NEPMU Service Around the World

In 1998, personnel from Navy Environmental and Preventive Medicine Unit-6, Pearl Harbor, HI, and Disease Vector Ecology and Control Center, Bangor, WA, assisted the government of the Republic of Palau in controlling an outbreak of dengue fever.

The group of islands that form the Republic of Palau are located in the Western Pacific Ocean, about 400 miles due east of the Philippine Island of Mindanao. As with most tropical regions of the world, dengue fever is a major concern. Palau was experiencing a serious re-emergence of dengue.

And so in July 1998, a joint team of Navy, Air Force, and civilian preventive medicine and research personnel responded to a request from the republic's government for assistance. The preventive medicine specialists knew that there was no cure for dengue fever, but steps could be taken to lessen the opportunity for exposure to the mosquitoes that spread the disease. Mosquitoes were collected from water sources such as rain barrels, leaf axles, discarded tires, banana fronds, buckets, tree holes, and ponds. Aspirators and light traps aided in the collection.

After vector mosquito larvae and adult mosquitoes were evaluated, the teaching process began. Because no vaccines exist for the various forms of dengue, training for surveillance and spraying of the carrier mosquito was the only method to reduce the risk from future outbreaks. Palau Ministry of Health personnel, along with physicians, nurses, sanitarians, and labo-

ratory personnel, were trained. Their classes focused on the ecology of dengue fever, with emphasis on integrated pest management. Using the integrated method reduced the dependency on chemicals. Personnel were shown how to use available technology to rapidly diagnose dengue fever, rather than sending blood samples to a lab and waiting 30 days for results.

Today, medical personnel and citizens of Palau are better equipped to minimize future outbreaks of dengue fever. The President of Palau, Kuniwo Nakamura, sent his appreciation to NEPMU-6.

"The team trained our personnel to conduct dengue risk assessments in order to prioritize mosquito control efforts," he said. "The team members shared their vast experience and knowledge with [the medical team] during formal training sessions. Again, thank you for the opportunity, provided through your command, for the personnel in the U.S. military and the people of Palau to work together in a training project, which has greatly improved the health and welfare of the Palauan community."

### The NEPMU-6 Palau team:

LT David Bartholomew  
LT Marshall Monteville  
LTJG Michael Kubler  
LTJG Craig Stoops  
HMC Stephen Farmer  
Chief Hospital Corpsman Celso Yago  
Petty Officer Third Class Oliver Bascon

—Story by Earl W. Hicks, BUMED Public Affairs Office.

insects, identify potential unsanitary food sources, and teach proper food handling.

So it was on a breezy 92-degree Christmas Day when LT Sharon Wright, an environmental health officer with NEPMU-2 at San Isidro, made sure that internal sanitation and health practices were preventing illness. Wright said the preventive medicine inspections and training would ensure that food sources, preparation areas, and handling techniques would prevent food-borne illnesses.

Part of Wright's motivation this day was a special holiday hot meal being prepared by Army cooks for the Army and Navy troops in this remote area. It was the first non-MRE meal the troops had seen since their arrival 2 weeks before in San Isidro. Most everyone but the NEPMU unit was taking the day off to relax, play sports, or to make sparingly scheduled phone calls home.

As the sounds of a volleyball game echoed through the camp, Wright moved among the food preparation tents, thermometer in hand, working with an Army cook, Specialist Andrea Carter, to make sure that hot and cold foods were kept at their proper temperatures. Wright also made sure that cooks were handling and storing food properly.

"We want to avoid the temperature danger zones of above 40 degrees Fahrenheit for cold foods and below 140 degrees Fahrenheit for hot foods," Wright said. "Maintaining those temperatures prevents bacteria buildup."

Across the compound, with the foothills of the Montañas de Huapi as a backdrop, HMCS Barry Mullen held class with LTF-189 Soldiers on how to dispose of human waste and apply disinfectant to transport vehicles. With about 500 people in the camp at San Isidro, Mullen said it is mandatory that effective waste disposal methods are



in place which accomplish the disposal task without causing environmental damage. "One of our biggest jobs is training people about the importance of personal hygiene, unit sanitation, and proper disposal of refuse," he pointed out.

Earlier in the day, preventive medicine technicians prepared a grass field for an evening show provided by local entertainers. HM1 Jerry Acevedo and HM3 Garth Gumienny spent the mid-day hours dressed in full air filter masks and closed coveralls spraying the football field-sized outdoor concert area. The technicians assured onlookers that the spray would do its job and become inert by showtime.

"We want to make sure that no biting critter, such as mosquitoes, make attending the show an unpleasant event," Acevedo said. And elsewhere, technicians applied preventive measures to other recreational pursuits. On Christmas eve, in response to an offer from the Nicaraguan Air Force Officer's Club in Managua for JTF troops to use their swimming pool, HM1 Wayne Rudolph was there checking the facility to determine whether it met sanitary specifications for chlorine and other chemical ingredients and cleanliness. He and pool maintenance man, Isidro Gutierrez, also checked the pool's filter system and chemical storage procedures. On

Christmas Day he was back at the club inspecting food handling and food preparation areas. "It is good that the troops could have another source of recreation," Rudolph said. "But it is equally important that the recreation area is safe and doesn't make them sick."

Rudolph had been on the point team that made the barracks facilities livable for the American troops coming to Managua. He said the former Nicaraguan Army facility had thousands of termite colony tunnels that were removed prior to people moving in. In addition to the termites, the buildings that would become the Americans' "Hotel California" reeked from previous poor sanitation practices. It also had dysfunctional toilets and showers, along with a limited, mostly unusable water supply. Rudolph worked with the Army maintenance teams to ensure that the building was habitable from a preventive medicine point of view before residents moved in.

But as difficult as the quarters are in Managua, there was no Hotel California for Rudolph's counterparts in San Isidro. In their tent city on Christmas Day, the NEPMU-2 team was still showing and teaching personnel to make the Army and Navy efforts in their part of Nicaragua successful. According to Mullen, that meant more than merely recommending mosquito nets around the sleeping areas.

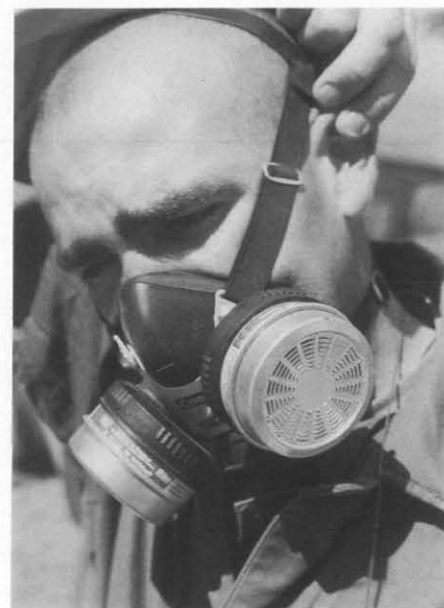
"Trash sites, latrine locations, tent placement, and location of showers were all contributors to good health," he said. "Latrines had to be away from the galleys and food preparation areas. Showers had to be built with appropriate soakage pits to prevent poor draining and therefore provide



HMCS Mullen demonstrates to LTF-189 Soldiers the safe way to prepare disinfectant for cleaning vehicles.



HM1 Jerry Acevedo tightens his breathing apparatus before donning his portable insect-spraying equipment. A cool breeze blowing through the foothills eased the process for him as he worked in the 95-degree heat in completely closed coveralls.



potential homes for mosquitoes. The trash sites have to be a certain distance from living and eating areas. And then the trash has to be disposed of in a manner that isn't harmful to the environment. We have the same considerations for waste such as solid and liquid human waste, and gray water. After all the appropriate setup considerations, vector (disease-carrying insects) control in the form of spraying

prevented another illness-causing problem."

HM3 Margaret Tremblay showed how something as routine as a handwashing station required certain considerations. "Because we don't have heads with washbasins everywhere troops have to build handwash stations. In doing that they couldn't just hang a water container from some sticks and say the station was com-

*Below: The preventive medicine team sprays a football-sized field prior to use for a Christmas evening performance by local entertainers.*





Joint Task Force Aguila members visited the Las Guerdas Orphanage just outside Managua, Nicaragua. Children of the facility signal their feelings for the day along with HM1 Wayne Rudolph.

plete. But the station itself can cause problems if it isn't done correctly." Outside the NEPMU-2 command tent, she demonstrated how the station should be made.

"It is the same as showers and water from the galleys," she pointed out, demonstrating how a pit had been dug under the container. "The unit could produce standing water, which helps breed disease-carrying vectors. So, the washstation has to drain water away adequately."

All the preventive medicine considerations are part of the team's joint effort with the LTF-189 troops. The camp commander is LTCOL Lynn A. Collyar, who is also commanding officer of LTF-189. At Collyar's daily commanding officer's meetings, Malakooti briefs Collyar as to what needs to be done to enhance vector control, prevent food-borne illness, and maintain effective waste disposal that is environmentally safe.

"It is important that we perform as a team," Malakooti said, referring to the Army contingent in the camp. "They are here to perform a job and we are here to ensure they can do that job from a preventive medicine point of view. The CO's meeting keeps everyone informed about our ongoing tasks and prevents miscommunication and breakdown of the effort."

To show his support for what his teams were accomplishing in Nicaragua, CAPT Buck, commanding officer of the Naval Environmental Health Center, and Command Master Chief Eric Hanson, visited the teams' facilities in Nicaragua.



Buck said the mission of preventive medicine in Central America is two-fold. "In the first phase we have to provide the public health and preventive medicine support for our own troops, such as testing the water and food and making sure they have the public health infrastructure in place," he said. "As we move into the second phase—the humanitarian mission—which has so far been an engineering mission, we will expand out into the community and help the Nicaraguans by providing some of the same preventive medicine efforts we have been applying to our own facilities."

Buck pointed out that the conditions facing the military, including the preventive medicine teams have been arduous, at best. However, everyone was doing their job in an uncomplaining, professional manner.

"This is what the preventive medicine teams train for; this is what they do," he said. "My visit with them at Christmas was to provide special emphasis on how much we appreciate their outstanding effort." □

—Story and photos by Earl W. Hicks, Public Affairs Office, Bureau of Medicine and Surgery, Washington, DC.



# Penicillin, Polio, and Apollo 11

## Navy Environmental and Preventive Medicine Unit-6

### Turns 50

CAPT H. James Beecham III, MC, USN



July 1969: From their quarantine trailer on the deck of USS *Hornet*, the Apollo 11 astronauts receive a welcome back greeting from President Richard Nixon. NEPMU-6 personnel assisted in testing and "decontaminating" the materials the astronauts came in contact with upon their return from the moon.

This year the Navy's four Environmental and Preventive Medicine Units (NEPMUs) located in Norfolk, VA; San Diego, CA; Sigonella, Italy; and Pearl Harbor, HI; celebrate their 50th anniversary (1949-1999). NEPMU-6 is located in Pearl Harbor, HI, and was established on 10 Mar 1949.

#### **Humanitarian Relief: A Navy Medical Tradition**

Interestingly, some of the earliest NEPMU-6 activities center on humanitarian relief efforts. In 1962 NEPMU-6 received recognition for conducting medical relief operations in Guam following Typhoon Karen. That same year, NEPMU-6 personnel assisted with "Operation

Swallow" on Oahu, immunizing 78 percent of the island's population against polio.

The following year NEPMU-6 personnel rushed to the island of Kwajalein again to mount a polio immunization campaign after 196 islanders had been stricken with the crippling disease. The Secretary of the Navy capped this effort with a Letter of Appreciation.

Later years would see this tradition continue. In 1968 NEPMU personnel went to Saipan in the wake of Typhoon Jean, where the majority of the island's population were without food, water, and shelter. In 1973 NEPMU-6 entomologists traveled to the Philippines to stem a major outbreak of malaria. The mosquito-borne disease had struck hundreds of Filipino civilians living adjacent to Subic Bay Naval Base. Two years later NEPMU-6 hospital corpsmen immunized, set up disease surveillance, and provided preventive medicine services to over 130,000 Vietnamese refugees relocated to Guam during Operation New Life.

More recently, in April 1991, a devastating killer cyclone struck Bangladesh, killing over 100,000 people. Within a matter of days NEPMU-6 fielded a 15-member Preventive Medicine Disaster and Humanitarian Relief Team led by CDR Kenneth Ockermann, MSC. Dubbed Operation Sea Angel, the team joined Marine Amphibious Ready Group Three, an eight-ship task force diverted to Bangladesh while sailing home after duty in Desert Shield/Desert Storm.

In 1992 NEPMU-6 personnel were sent to provide disaster relief to victims of Hurricane Iniki on the island of Kauai, to Guam after Hurricane Omar, and then on to Somalia to "save a generation" during Operation Restore Hope. Two years later NEPMU-6

staff were deployed in support of Operation Safe Haven, providing assistance to displaced Cuban refugees in Panama, as well as to Chinese immigrants relocated in Guam.

### **The Vietnam Years: Penicillin and Apollo 11**

During the mid-1960's and early 1970's specialists in sexually transmitted diseases (STDs) did not exist. However, an NEPMU-6 physician, LT King K. Holmes, now director of the University of Washington's AIDS and Sexually Transmitted Disease Center, Seattle, WA, documented a 30 percent gonorrhea treatment failure rate among Sailors aboard USS *Enterprise*. These Sailors had been treated for gonorrhea with the then recommended dose of 2.4 million units of procaine-penicillin G. This unsuccessful treatment was one of the first signs of penicillin resistant gonorrhea. LT Holmes went on to show that adding 1 gm of probenecid dropped the treatment failure rate to zero.

Subsequently, LT Holmes described a "new" STD not cured with penicillin—nonspecific urethritis (NSU), and then successfully treated it with the oral antibiotic tetracycline.

In 1969 NEPMU-6 staff began groundbreaking STD treatment studies with the new drug doxycycline, which is now standard treatment for STDs. NEPMU-6 staff worked in the Philippines throughout the 1970s to document some of the earliest cases of penicillinase producing *Neisseria gonorrhea* (PPNG). PPNG caused an alarming number of penicillin treatment failures due to the presence of the bacterial enzyme penicillinase, which inactivates the penicillin. This work revolutionized national treatment recommendations for STDs.

As Medical Corps staff and hospital corpsmen were busy treating STDs, Medical Service Corps officers were

also busy. In 1969, with Apollo 11 landing men on the moon, NEPMU-6 assisted NASA by "decontaminating" the helicopter and other equipment used to lift astronauts Neil Armstrong, Buzz Aldrin, and Michael Collins from their space capsule to the deck of USS *Hornet*. The Unit received a Letter of Appreciation for their assistance.

### **Outbreaks, Exercises, Operations, War in the Gulf, and Disease Prevention**

Many of NEPMU-6's contributions to Navy medicine have been in the field of infectious diseases and continue to influence our practice today. In 1965 NEPMU-6 staff documented one of the first major shipboard tuberculosis (TB) outbreaks. Six Sailors with active TB aboard USS *Radford* (DD-446) were evaluated. These Sailors had infected 55 fellow crewmembers (19.2 percent). This information led to new Navy TB guidelines still in use today.

In 1983 members of NEPMU-6 conducted a large shipboard hepatitis study. The results documented that Sailors and Marines acquired hepatitis, particularly hepatitis B during WESTPAC deployments (Sailors 4.9 percent, Marines 6.8 percent). This information helped provide a scientific justification for some of our hepatitis immunization programs carried out today.

Exercise Team Spirit was a large, joint military exercise conducted annually in Korea until 1994. Each year a "mysterious" outbreak of respiratory disease struck up to 80 percent of Marines within 1 week of arrival in Korea, and was dubbed the "Korean Crud" by those affected. Many ascribed their symptoms to a large steel mill nearby. NEPMU-6's LCDR Kevin Hanson, MC, led an epidemiological study of the condition during the 1989 exercise. With the assis-





August 1998: NEPMU-6's HMC Celso Yago inspects a pitcher plant for mosquito larvae while . . .

tance of CDR Richard Thomas MC, LCDR Mike Crutcher MC, and others, he confirmed that the mysterious disease was in fact caused by at least five communicable respiratory viruses. They initiated simple preventive measures to reduce future disease, such as alleviating overcrowding and increasing facilities for handwashing. NEPMU-6's industrial hygienist determined that the illness was not caused by nearby industrial pollution.

As did many Navy units in 1990-91, NEPMU-6 deployed a team of specialists to the Middle East during Desert Shield/Storm. NEPMU-6's LCDR Kevin Hanson was the first Navy preventive medicine officer to arrive in Saudi Arabia and was instrumental in organizing one of the first joint service, in-theater disease and non-battle injury (DNBI) surveillance systems. A form of this DNBI system has since become the DOD-wide Deployment Medical Surveillance program.

After the Gulf War, LCDR Hanson served as the Joint Task Force Preventive Medicine Officer in Somalia during Operation Restore Hope. For

his original work in all three operations, GEN Colin Powell awarded LCDR Hanson the first Chairman of the Joint Chiefs of Staff Award for Excellence in Military Medicine.

Also during this time a 25-member Navy Preventive Medicine Team deployed to Saudi Arabia and joined the 1st Marine Division. Personnel were drawn from each of the four NEPMUs, both of the Disease Vector Ecology and Control Centers (DVECCs, at Jacksonville, FL, and Bangor, WA) and the Navy Environmental Health Center (NEHC), Norfolk, VA. They were tasked with assisting the Marines in preparing for the reception of thousands of enemy prisoners of war (EPWs). They also developed a public health plan to manage the anticipated displacement of thousands of Kuwaiti civilians during the liberation of Kuwait City. Following the battle a four-person Navy preventive medicine advance party drove with the Army Civil Affairs Group into Kuwait City and assisted in conducting a variety of public health assessments. Current NEPMU-6 Senior Enlisted Leader and Preventive Medi-

cine Technician HMCS (FMF) Cheri Inverso was in that advance party, and one of the first Americans to enter Kuwait City following its liberation.

### **Japanese Encephalitis Vaccine and the Navy Forward Laboratory**

The disabling mosquito-borne disease Japanese encephalitis (JE) struck Marines stationed on Okinawa in 1991. This event led to a large Navy effort both to describe the risk and epidemiology of JE as well as to provide for a first-time immunization of over 35,000 American military and family members residing on Okinawa. CAPT Bill Berg (NEHC) directed the overall effort while NEPMU-6's LCDR Kevin Hanson, CDR Dick Williams, HMC Cheri Inverso, and HM1 Mike Gagne also participated. So did NEHC's CDR Ben Mitchell and others who conducted much of the epidemiologic fieldwork and analysis. LCDR Diane Novak, MSC, coordinated a robust staff effort from the Naval Hospital Okinawa that immunized, organized, and assisted with the epidemiological investigation.

As a direct result of this landmark preventive medicine effort in Okinawa, Japanese encephalitis vaccine was determined to be safe and was formally approved by the Food and Drug Administration. Since then, administering the JE vaccine has become standard treatment for U.S. troops deploying to countries where JE exposure is a risk. Subsequently, since 1992, no documented JE cases have occurred among U.S. service personnel.

The current Navy Forward Deployable Laboratory (FDL) is based

... entomologist LT David Bartholomew receives some assistance collecting insects during the Palau deployment.

at NEPMU-6. The lab arose out of a real-world need for a rapid, diagnostic, microbiologic and public health surveillance laboratory during the Gulf War. Having seen the FDL concept work firsthand during the Gulf War, CAPT Joel Escamilla, NEPMU-6's officer in charge (1992-1995), obtained funding to procure equipment, hardware, and supplies to stand up an FDL at NEPMU-6. The lab was then test-deployed to Thailand during Exercise Cobra Gold in 1994, and has since seen action in Thailand, the Philippines, Australia, and was most recently deployed to Saudi Arabia in support of Operation Southern Watch following the June 1996 Khobar Tower terrorist bombing. The FDL is now a Navy asset and is listed in the CINC Navy Capabilities and Mobilization Plan (NCMP).

#### **Deployment Medical Surveillance: A Model for the Future**

New challenges drive new ideas. A recent example of this occurred in 1997 when NEPMU-6 deployed a multidisciplinary Public Health Lab and Medical Threat Assessment Team to Australia in support of Tandem Thrust 97, the largest military exercise in the Pacific in 15 years. CDR Jeff Yund led the team whose mission was disease and vector surveillance, data analysis, medical threat assessment, and operational preventive medicine.

Of particular concern was Ross River virus (RRv), a mosquito-transmitted disease common in the exercise area. The infection causes a prolonged arthritis. Of 19 suspected cases during the exercise, the lab confirmed 6. Additionally the virus was isolated



from two ill servicemembers, providing the first scientific reports of RRv isolated from U.S. military personnel.

Additionally, entomologists trapped 45,000 adult mosquitoes and recovered RRv from a number of species. Over 1,300 deployment sera and surveys were tracked and analyzed. This large exercise pointed out the need for a mobile preventive medicine unit extrinsic to the combat units to provide in-theater force health protection. One such concept, the Forward Deployed Preventive Medicine Unit, is currently in development at NEHC, Norfolk, VA.

Traditionally NEPMU-6 has provided epidemiological assistance to the Navy Medical Research and Development Command for special projects. NEPMU-6 staff were part of a 15-member, joint-service Enteric Disease Surveillance Team in Thailand during Exercise Cobra Gold '95, and Exercise Balance Torch in 1996. NEPMU-6 staff have assisted Navy Medical Research Unit 2 in Jakarta, Indonesia, in disease surveillance and training on various infectious disease projects in Vietnam, Laos, Cambodia, Irian Jaya, and Indonesia.

More recently in 1998, NEPMU-6 entomologist LT David Bartholomew led a Vector Control and Training Team into the Republic of Palau (Micronesia) following an outbreak of dengue fever. The team conducted comprehensive vector control training, laboratory training, and training in the use and maintenance of mosquito control equipment. The equipment was then donated to the Palau Ministry of Health. Pacific Command forces stationed there will now benefit from the dengue control efforts and enhanced local diagnostic capabilities.

As we charge forward into the next millennium, new priorities emerge and NEPMU-6 has taken on a new challenge: the development of a chemical, biologic, radiologic, and environmental (CBRE) surveillance response capability. During this 50th Anniversary remembrance, we will continue to be aware of the "wake" of our proud heritage, but will boldly steer into the future guided by the stars before us. □

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Dr. Beecham is Officer in Charge of NEPMU-6, Pearl Harbor, HI.



# Navy Medicine: Far Forward at the Tip of the Spear

CAPT William P. Frank, MSC, USN

In January 1998 U.N. Secretary General Kofi Annan dispatched diplomats to Baghdad in yet another attempt to get Iraq to cooperate with inspectors of the United Nations Special Commission (UNSCOM). Even as he did so, Marine Corps GEN Anthony Zinni, Commander and Chief, U.S. Central Command (CENTCOM) directed a Marine Air Ground Command Element (I MEF(FWD)) from Camp Pendleton, CA, to make ready to deploy to Kuwait as part of the latest crisis buildup of forces in the Persian Gulf.

By the end of January 1998 the total number of U.S. military personnel in the Persian Gulf region had topped 24,000 manning the aircraft carriers *Nimitz* and *George Washington*, more than 300 combat aircraft, and 19 surface combatants. The British carrier *Invincible*, a 20,000-

ton vessel with 14 combat aircraft, had also entered the Gulf while its sister carrier, *Illustrious*, steamed from British home waters for a scheduled arrival in the Gulf in early February.

With Iraq continuing to defy U.N. resolutions and with efforts to mediate an agreement appearing bleak, GEN Zinni ordered the immediate implementation of the anthrax vaccine immunization program (AVIP). All personnel headed for the Gulf were to be immunized.

As the drums of war continue to beat, senior military planners intensified their synthesis and analysis of theater operational war plans (OPLANs). Air strikes seemed inevitable as top DOD officials dubbed this latest military buildup in the region Operation Desert Thunder.

By 7 Feb CENTCOM signaled for

the deployment of the I MEF(FWD) command element to the Kuwait Area of Operations (AO) to increase deterrence and respond to any Iraqi aggression. I MEF(FWD) was now tactically and operationally under the command and control of Coalition Joint Task Force-Kuwait (CJTF-KU), headed by the Commander, U.S. Army Central Command (ARCENT-KU), located at Camp Doha, Kuwait.

Already, more than 5,000 American troops had been committed to enforce the no-fly zone over southern Iraq (Operation Southern Watch). At the same time in Kuwait, the U.S. Army reinforced its battalion of armor and mechanized infantry on the Iraqi border to a full brigade-sized task force of 3,000 troops.

Finally, in a show of unity against Saddam Hussein, other U.N. Security

Council member nations supported a resolution approving the use of military force, and pledged to commit forces to the region. The integration of Coalition Forces provided war planners with an additional complement of combat assets, completing the already large contingent of pre-positioned strike forces deployed to the region. This gave the United States an overwhelming advantage should air strikes begin.

As the time drew near for a possible military strike, U.S. and British forces had reached a level of combat capability not seen since the 1991 Gulf War, fielding a force that could easily sustain a lengthy operation. Less evident in this crisis-contingency build-up phase were Navy medicine's efforts to support our far-forward expeditionary air, ground, and sea-based troops. While the buildup of U.S. Forces continued, Navy medical professionals joined their colleagues already assigned as organic assets to the deploying armada, and prepared to link up with staged forces to prepare troops for the very real possibility of going in harm's way. The omnipresent threat of chemical or biological weapons was also part of the equation.

With strike aircraft already heading toward their targets, Baghdad again relinquished its defiant posture, and Operation Desert Thunder gave way to combined joint field training exercises with Kuwaiti land forces in the sweltering desert.

### **Operation Desert Fox**

This past fall, forward deployed Sailors and Marines conducting joint and combined naval surface and am-

phibious exercises in the Arabian Gulf region were once again put to the test as tensions with Saddam Hussein reached critical mass. On 16 Dec 1998, Saddam's continued defiance of UNSCOM prompted Operation Desert Fox. U.S. and British defense officials launched warplanes and sea- and air-based Tomahawk missiles to strike key Iraqi military and communications installations.

The force structure and buildup during Desert Fox was substantially less than during Desert Thunder. Forward deployed air and ground forces located in Kuwait and at sea in the Gulf were already on hand conducting routine combined-arms training exercises, and were deemed sufficient to carry out planned operations against Iraq. Deterrent ground forces were comprised of U.S. Army Task Forces's 4-64 and 3-15, and the 31st Marine Expeditionary Unit (MEU) from the USS *Belleau Wood* Amphibious Readiness Group. The USAF 332nd and 9th Air Expeditionary Groups supported the air contingency operations. Together, these combat-ready forces were postured far forward in the desert and on the highest state of alert should Saddam Hussein send his Republican Guard forces once again south and into Kuwait. The Combined Force mission was prepared to defend Kuwait and transition to follow-on unified operations as directed by CINCCENT.

### **Forward Medical Support During Desert Thunder and Desert Fox**

Forward deployed Navy/Marine expeditionary forces must be capable of operating effectively in any envi-

ronment and against a wide range of potential adversaries—human and otherwise. Far-forward AO's such as in Southwest Asia often present unique health care challenges. Operating in this region poses unique concerns for planners—a hostile environment and also the traditional threat posed by conventional enemy forces, unconventional warfare, and the possible use of weapons of mass destruction (WMD). The constant dark shadow of the terrorist also looms.

Also of no small concern are limited pre-positioned medical assets to draw upon once forces begin deploying to this theater. In meeting many of these medical challenges, CENTCOM and service component medical planners work together to devise OPLANs. These include the right mix of joint deployed medical personnel, equipment, and afloat/ground medical platforms staged to meet operational forces assigned during all phases of a contingency plan.

"What's been unique about these two operations—other than the obvious issues associated with operating in such a harsh environment—is the composition of forces deemed sufficient to support combat operations against the Iraqis," says LT Chris Mino, the Medical Service Corps' Plans, Operations, and Medical Intelligence (POMI) Officer. Mino is the sole medical planner for JTF-Kuwait. "The JTF is tasked with executing the mission against Iraq with the forces on hand. That equates to some unusual challenges for the medical planner. We're forced to rely largely on organic assets available in the deployed forces to build a theater support plan."



LT Chris Mino (middle) is used to operating in a desert environment.



Orchestrating an executable combat plan utilizing sparse Joint and Combined medical assets available during the latest crisis and Operation Desert Fox was every inch a challenge. "It's an old adage, but it's really true that necessity is the mother of invention," states Mino, "and innovation has been the order of the day here in the desert."

Part of the development of an executable plan included some creative use of available capabilities. For example, U.S. and British medical augmentation teams, consisting of several critical care specialties and ancillary support personnel, were assigned to specific Kuwait Host Nation (HN) hospitals. This plan was activated under a "Defense Cooperation Agreement" developed under the auspices of CENTCOM and Kuwait. The USAF/British augmentation teams provided the only echelon III support capabilities in the potential combat zone. Echelon II support was

provided for by organic medical support assets assigned to Marine and Army field units, as well as the significant afloat assets of *Belleau Wood*.

Even with a fairly robust medical support plan to accommodate forces deployed to the CENTCOM AOR, issues such as force health protection (principally in the face of an ongoing WMD threat), and extremely long distances to medevac patients, presented ongoing challenges to the medical planner and deployed health service support personnel.

"The concerns over Iraq fielding some type of (WMD) against U.S. and coalition forces has really brought force health protection to the forefront of concern to our leadership," Mino points out. "Force health protection initiatives such as using the anthrax vaccine against the bio-warfare threat and ensuring you're deployed with a full complement of individual protective equipment to protect you in

the event of a chemical strike are taken very seriously by the Sailors and Marines deployed to the Persian Gulf AO. This is where the threat stops being far away and starts being very real and very scary."

Ensuring that we are optimizing FHP initiatives has been a priority to LT Mino and the medical personnel assigned to Desert Fox platforms. "We're keeping a pretty tight eye on maximizing FHP initiatives among the Desert Fox deployers," said Mino, "force protection equals force sustainment, and force sustainment means we are able to accomplish our national security objectives. That's our business."

Medevac of sick and injured patients within the Persian Gulf has also been a challenge. "In PACOM's AOR, you often hear the concept of 'The Tyranny of Distance,' because the sheer enormity of geographic area complicates patient movement. While certainly not as large as the Pacific,



the 'Tyranny of Distance' has similarly prompted CENTCOM to pay close attention to how we'll conduct intra-theater medevac," says Mino. "You adapt. If your helo 'legs' can't make the trip, you rely on your sister services to provide the necessary link to get patients where they have to go. For example, the 54th Medevac Blackhawk helicopters stationed at Camp Doha are responsible for transporting joint forces aboard Navy vessels as part of the medevac plan. They also have been given the opportunity to perform deck qualification training during planned sea operations in the Gulf region—Army pilots on Navy ships being taken care of by Marine crews. Now there's a great example of Joint Ops!"

Mino sees these types of operations as harbingers of change in doctrine and standard operating procedures. "This is the way we do business now in the fleet. We really have gone Joint, and it's important that medical

professionals get a handle on how the other services do business."

As U.S. and British strike operations continued over Iraq and forces were redeployed from the field, medical training and health service support contingency plans were constantly redefined to maintain a high state of medical readiness. In fact, two first-ever mass casualty drills designed by the CJTF-Kuwait medical planner were successfully executed at one of the Kuwaiti HN hospitals.

The exercises included the use of the Army's dedicated medevac Blackhawk helicopters and USAF medevac helicopters from Ali Al Salem Air Base, which practiced field triage procedures, staging patients aboard the aircraft, and gaining terrain familiarity on the flight from the Kuwaiti desert to the identified HN hospital's landing zone. "It worked like a charm," says LT Mino. "We developed the concept, got cooperation from the forces involved, exer-

cised it, and proved we can make it happen."

Further, the exercise validated a combined response capability by Coalition forces using a Host Nation facility, inspired critical teamwork building and crisis management skills, led to the development of new hospital policies and procedures, identified equipment shortfalls, and cemented positive Coalition relations. "We do TEAM in all capitals around here—everyone understands that pulling together is the only way to ensure success," Mino points out. "While no one wants to go to war out here, we are ready and prepared to support our forces if they have to go in harm's way." Standing by, ready to assist. That's the Navy medicine way. □

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CAPT Frank is Plans, Operations, and Medical Intelligence Specialty Leader.



# Health Care Marketing:

## Its Concept, Audit, Plan, and Strategy Development

LT Jessie Gee, MSC, USN

**W**hat is health care marketing? To understand this question, one first must understand the definition of marketing. The American Marketing Association defines marketing as the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives.

Health care marketing is defined as a commitment on the part of top management to determine the wants, needs, and desires of the hospital's target population. This is accomplished through a method of systematic research so as to develop programs and services that not only attain the hospital's objectives but facilitate, through effective communication, as exchange relationships with the target population.<sup>(1)</sup>

Medical treatment facilities (MTFs) have engaged in marketing activities for years. All MTFs market themselves, and they have always done so. Marketing occurs in the medical staff lounge, on community health day, dur-

ing command indoctrination, in new employee orientation, and in press releases. Examples include public relations, promoting an MTF's images and services, addition of new services to meet patient needs, and aggressive recruitment and retention of physicians and staff, etc.<sup>(2)</sup> Applying the four P's of marketing—product, place, promotion, and price is not difficult: health services marketers have adapted them with a new vocabulary—service, consideration, access, and promotion (SCAP).

Marketing in MTFs has significantly changed in the past decade. It is no longer viewed as a segregated, stand-alone activity that consists of disseminating information about patient satisfaction. It is not the artificial creation of demand for service.<sup>(3)</sup> While marketing in MTFs is consumer focused,<sup>(4)</sup> the contemporary perspective of marketing is that it is a designed process, integrated with other MTF activities, in which the MTFs seek to identify and satisfy the needs and wants of stakeholders who may be patients, clinical staff, and the com-

munity at large so that the MTF can accomplish its objectives and fulfill its mission.

Marketing is an integral part of strategic planning. According to Kotler and Clark, it is impossible to plan strategically without including an assessment of the market environment, through a market audit, and integrating both the information obtained and the marketing function with strategic planning. The link between health care marketing and strategic planning is best understood with a base knowledge in the marketing concept, marketing audit, marketing plan and strategy.

### Marketing Concept

The concept of marketing means determining the needs, wants, and desires of the target markets and designing programs and activities, products, and services to satisfy them.<sup>(5)</sup> The marketing concept begins with the existing or potential consumer needs, plans a coordinated set of programs and services to serve those wants, needs, and values, and in return

satisfies its goals through creating consumer satisfaction. As Peter Drucker states, "The aim of marketing is to make selling superfluous. The aim of marketing is to know and understand the consumers so well that the product or service fits him and sells itself."(4)

### Marketing Audit

The marketing audit is an evaluation of an MTF's activities. Bell suggested that a marketing audit is a systematic and thorough examination of an organization's marketing position. During a marketing audit, an MTF must: (1) survey the environment to identify target markets (customers and constituents) and their needs, along with identifying opportunities and assessing competition, (2) evaluate present product line or service mix relative to identified target market needs to determine gaps in product line or service mix, potential target markets, competitive and other threats to the MTF, and whether special opportunities exist, (3) modify exchange facilitators so they are consistent with the MTF's strengths and weaknesses and facilitate exchange.(4)

MTFs must evaluate and realign their mix of products, services, and programs as target market changes; as health services needs, preferences, and attitudes shift and change; and as competition and technology intensify. Such realignment must be consistent with the MTFs' capabilities and strengths and may include expansion or elimination of services under conditions of downsizing.(4)

### Strategic Planning

MTFs that survive in the current competitive health care marketplace will be those that have implemented comprehensive strategic planning programs. Strategic planning is the pro-

cess whereby MTFs assess the total health care market and their competitive position within the market to determine a future direction which will promote long-term economic growth and satisfy community needs.

Strategic planning encompasses the existing MTF practice of facility and program planning, and also includes the MTF mission statement, goals, market strategy, image building, community relations, a comprehensive planning database, assessment of major competitors, present and future medical staff development, budget, cooperative and political planning.(6)

### Marketing Strategy

The formulation of a marketing strategy involves the identification of target markets, often called "segments" and the development of a marketing plan which involves the selection and combination of the elements of product, place, price, and promotion (PPPP)/service, consideration, access, and promotion (SCAP). Through the systematic gathering and analysis of pertinent information, chosen market targets can be reached by the appropriate use of identification and selection instruments. Collection of information, the analysis of information, and the continuous monitoring of market behavior are integral parts of any marketing strategy.(1)

In today's fiercely competitive managed care marketplace, MTFs must find a way to set their plans apart from the competition and build a sufficient customer base. Key strategies to help an MTF meet today's health care delivery challenges are: (1) determine community needs, (2) develop a shared vision based on the market, (3) develop a strategy to manage costs while maintaining the quality of care, (4) measure and report clinical outcomes, and (5) distinguish itself from the competition.(7)

### Conclusion

There is a definite need for MTFs to develop a basic understanding of health care marketing concepts. Their survival in the future will depend on their ability to respond to the needs of consumers through innovative and quality service. Impetus for the marketing concept must begin with the commanding officers and spread throughout the entire organization. Any other strategy will be ineffective.(4)

Marketing concepts and techniques will have positive effects for MTFs, especially in the areas of helping create a constant image, developing an understanding of community needs, and developing and promoting new hospital services.(4)

MTFs have traditionally had a captive customer base and never required a marketing concept. As the future brings more competition in the health care environment, survival has become their top priority.

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When this article was written LT Gee was Head, Patient Administration Department, Naval Hospital Charleston, SC.





# Naval Research Lab's CAPT James Campbell Successfully Completes English Channel Swim

Jennifer Burke

**D**uring the dark night of the new moon, on 15 Aug 1998, 1,500 yards from Cape Gris-Nez, a prominent point on the coast of France, a lone pilot boat sounded its siren at 2345. The signal officially marked CAPT James Campbell's successful completion of the English Channel Swim, an ultra-distance swimming event held annually from Dover, England.

CAPT Campbell crossed the English Channel in 17 hours and 41 minutes. Of 12 determined swimmers who arrived at Dover to take on the challenge of the English Channel Swim, eight actually attempted the swim and only three were successful. CAPT Campbell was the only successful finisher of the three Americans who tried the swim last year.

The shortest distance across the English Channel from Dover, England, to Cape Gris-Nez, France, is 21 miles. The cold water temperatures and the often rough waves make this ultra-distance swim very challenging, and it is considered by many to be "The Everest" of marathon swimming.

Endurance swimming has a semi-mythical ancestry in the crossing of

*Opposite page:* CAPT Campbell swims past a tanker about 8 to 10 miles out in the channel and (below) stops for refueling with a high-carb drink.



the Hellespont Strait by the Greek lover Leander to meet Hero. In the history of the English Channel Swim, the first person to swim across the Channel was CAPT Matthew Webb on 24 Aug 1875.

CAPT Webb dove from the steps of Admiralty Pier, Dover, England, and landed in Calais, 21 hours and 41 minutes later. Fueled by beef sandwiches, tea, and beer, Webb swam breaststroke, covering a distance of 63.2 K (39.5 miles) on a "Z" shaped course. At the time, Webb was said to have swum the unswimmable. This was his second attempt.

When CAPT Webb returned to England, the mayor of Dover declared, "I make bold to say I do not believe that in the future history of the World any such feat will be performed by anybody else."

In the 123 years of channel swimming history, there have been slightly over 6,000 attempts with only about 500 successful crossings. This accounts to a success rate of only 8 percent.

A native of Honolulu, HI, CAPT Campbell grew up around water and loved the ocean and water sports. He swam competitively in high school and college. Since then, Campbell has maintained a healthy and physically fit lifestyle.

Disciplined and determined, CAPT Campbell serves as program manager



for biotechnology and environment at the Naval Research Laboratory's (NRL) Chemistry Division and is a Medical Service Corps officer. He spent 2 years training and building his endurance for this monumental event at the NRL Rec Club pool and in nearby open water, accumulating about 3,000 miles. Monday through Friday, Campbell would swim from 0500 to 0800 before work. And, on one day of the weekend, he would either swim more laps at the Rec Club pool or swim out in open water. "I gradually started doing longer swims, about 6 to 8 miles across the Potomac and Hudson Rivers," he said. Up to the time of attempting the English Channel Swim, Campbell's longest swim was 8 hours straight in open water.

It was not until 3 months before the English Channel Swim that Campbell made the final decision to ensure success in his Channel crossing. "I put on 15 to 20 extra pounds of fat for insulation." He further explained that, "Most people fail the swim challenge not because they are out shape, but because of one of two reasons: they get hypothermia or they get sea sick." And since the English Channel swimming rules do not permit a wet suit, all he had to swim in was a speedo, goggles, and swim cap. For this reason, he arrived at Dover, England, 2 weeks early to acclimate to cold water. During the 2 weeks prior to the actual swim, CAPT Campbell swam in the harbor at Dover, starting with a long swim of 6 hours and tapering off as the big day approached.

**CAPT Campbell minutes after successfully completing the swim in 17 hours, 41 minutes**



A successful finisher of the English Channel Swim, CAPT Campbell stands on the Dover beach the day after his triumph.

Figuring that the fastest swim across the Channel would take approximately 12 hours, CAPT Campbell decided he wanted to complete his swim while it was still daylight, thus starting out in the dark as opposed to finishing in the dark. At his initial starting time, 0400, water conditions were too treacherous. The winds were at 18 to 20 knots, and the waves were 7 feet. The pilot boat captain, Mike Oram, delayed the start for 2 hours. Campbell's goal to finish during daylight was no longer possible.

CAPT Campbell began the swim at 0600. The water was a chilly 61°F, compared to the Rec Club's pool temperature of 81°F; the waves were breaking at 3 to 5 feet; and the winds were now at 8 to 10 knots. Commenting on the first 4 hours of swimming, Campbell said, "It was just a matter of surviving. As long as I didn't get cold I knew I could keep swimming. After swimming for a long time, I would look back to see where I was, compared to before, and the cliffs of Dover still loomed in the distance. That was really demoralizing. At that point, I decided to not look back anymore."

Every hour, he swam next to the pilot boat and grabbed a drink of a mixture of high-carbohydrate powder and water. On alternate hours he ate chocolate rolls and used mouthwash to prevent his throat from swelling due to the salt water. During these breaks, he was not allowed to touch the hand feeding him or hold onto the boat.



Throughout the swim, the pilot boat guided him along the course, passing nearly 30 freighters, barges, and ferry boats.

The "wall" came after 10 hours. At this point, he became very tired but said, "It was not within the realm of possibility that I would quit. The next goal I told myself to concentrate on was to keep swimming until nightfall. Then, I knew that the finish would be close."

The pilot captain told Campbell that if he could swim any faster he would be able to catch the current to help bring him in. However, he missed the current slightly and estimated that he had to swim another mile or so to reach the landing point. CAPT Campbell commended his pilot boat captain for not giving him a false sense of how much further the finish line was. A bit later, when the pilot captain told him he had only 1,500 yards to go, CAPT Campbell realized the end was very near. He finally saw land at Cape Gris-Nez and maneuvered around the rocks and waves to reach shore.

Only having the flashlights of two fishermen on shore and the spotlight

from the pilot boat to guide him in the dark, Campbell had to climb out of the water on the rocks. He was hit by a wave and fell across a rock covered with barnacles, slicing his hands and chest. Once ashore, the siren blared to announce to all who could hear, the successful completion of the English Channel Swim.

That was not the end of the end. Campbell still had to swim back to the pilot boat for his return voyage to England. After surviving the cold water temperature and rough conditions and the abrasive scramble ashore,

Campbell longed to lie down. The pilot captain advised him to sit up and to prop himself against a wall, for he knew the trip was not over yet. Five minutes later, CAPT Campbell became sick and remained ill the whole way back to England.

The physical toll took place shortly after. Campbell could not lift his right arm above his shoulder, having calculated that he took approximately 65,000 strokes to complete his swim. And, due to the early hour start on Saturday and the sickness that followed his completion of the swim, he managed only 9 hours of sleep over the next 2 days. Once hydrated, he noticed a true weight lost of 9 pounds. When asked if he would do the swim again, Campbell answered, "No. Once is enough." He plans to do short sprinting distances in the near future. Then, there is always the Manhattan Island swimming event. □

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# Implementation of Officer Career Information Training Course

CAPT A.A. de Savorgnani, NC, USN

How can you make the most of your career in Navy medicine? While many resources may be available to assist in your quest, Medical Department officers do not have a single program designed specifically to meet their career needs. This issue became apparent during the fall of 1995 when numerous Naval Hospital Lemoore staff officers attended the Navy's Career Information Training Course that focuses primarily on enlisted issues. Course evaluations indicated an interest in a program specifically designed for active duty and reserve officers and their career needs.

A core group of hospital directors and other officers began meeting in December 1995 to brainstorm the concept of an Officer Career Information Training Course (OCITC). The goal of the course was to provide a 1-day career information training program to support and enhance career development of Medical Department active duty and reserve officers from enlistment through captain.

Group members developed a list of specific topics of interest to Medical, Dental, Nurse, and Medical Service Corps officers and then "affinitized" the topics into broad categories including military service record maintenance, selection boards, career planning, subspecialty codes, educational opportunities, redesignation process, release from active duty, detailing/placement, and corps-specific information.

Next the planning group set up a course agenda and assigned each group member one or more sections to prepare a teaching plan for presentation. Existing instructions and corps updates were consulted as well as the Professional Development Division at BUMED and assignment offi-

cers at BUPERS. An outline of each section was prepared listing behavioral objectives, a description of the content, time frame, presenter, and teaching method(s). An enlisted command member then prepared a complete course outline using Power Point overheads. An offsite location was selected and course marketing via CHCS, posters, and directorate meetings took place.

Launched on 3 May 1996 at the hospital, the first OCITC included 12 officers from the 4 corps in attendance. Attendees received copies of the Officer Career Guide as well as loose-leaf notebooks with the course outline for notetaking. Upon completion of the course, officers provided highly enthusiastic comments in course evaluations concerning benefits of OCITC and noted they would have liked the course at the beginning of their careers as well as at intervals thereafter. Subsequent courses with 17 officers each were presented in June and December and a course was offered for 15 officers in May 1997.

Marketing OCITC also extended to West Coast military treatment facilities via message. Participants provided further feedback considered vital for ongoing adjustment and improvement of the course. Feedback affirmed OCITC was "a good course for all officers—especially new ones—to learn how to communicate with BUPERS and keep track of our own records." Attendees found "all subjects were useful and interesting." They felt "we need to continue paying attention to all officer careers. If we're taken care of, it's easier to take care of our junior people and enlisted." They further suggested "this course should be required—like Navy Rights and Responsibilities; except

maybe every 3 years because (our) needs as officers are constantly changing." The course structure also received positive comments: "Slides/graphics were sharp—good attention getters—easy to follow along; the handouts were helpful too." A suggestion was made to present the course to Reserve units as well.

Instructors agreed to update and revalidate course content prior to each offering of OCITC. An application for continuing education credit (6 CEUs) for nurses was approved by the Naval School of Health Sciences Bethesda, MD; a similar application will be initiated for Medical Corps officers. The course is recognized by Navy Dental Corps for American Dental Association Continuing Education Recognition Program. Medical Service Corps officers need to submit a copy of their course completion certificate to the American College of Healthcare Executives (ACHE) for Category II continuing education credit.

There is a possibility of providing the program as a video teleconference for sites that are interested. This course is being presented on a semiannual basis at Naval Hospital Lemoore, CA. Anyone interested in attending may visit the command website at <http://support1.med.navy.mil/lemoore> for course information as well as download a copy of the course outline. Course video copies may be requested from Naval Hospital Lemoore Education and Training Department. □

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When this article was written CAPT de Savorgnani was Executive Officer at Naval Hospital Lemoore, CA. She is currently Commanding Officer of Naval Medical Clinics, United Kingdom.



# FOXY-29 and Tank Deck Hospitals

## The Medical Role of LSTs in the Invasion of Normandy

Dale Groom, M.D.

### Part I

*Firsthand accounts of casualty care under combat conditions are invaluable in offering a realistic perspective on readiness. This article describes an innovation in care—use of the LST (Landing Ship Tank) as a casualty receiving platform—during the Normandy invasion of June 1944. The insights of a young physician thrust into his role as a Navy physician demonstrates that the dynamics of adaptation, innovation, and focus on mission are as relevant today as when these events were experienced 55 years ago. To preserve the quality of the author's account, this article is serialized in three installments.*

**A**n innovation in naval warfare, the LST, was the primary vehicle launched during the greatest seaborne invasion in history. Three hundred and twenty-seven flat-bottomed feet of seagoing freight train,

LSTs were famed for their capacity to carry immense loads across oceans, depositing hundreds of Soldiers with all their armaments, trucks, tanks, and jeeps on an invasion beach almost anywhere in the world. More than a thousand were built in American shipyards. It was in the all-out assault on Hitler's fortified continent of Europe, at the Normandy beaches of France, that "the lowly LST" played its most decisive role in turning the tide toward victory for the Allies in World War II.

### **Lifesaving, Medical Role of the LST**

Less recognized, however, is the additional and quite different role a fleet of LSTs played in the Normandy Invasion—a lifesaving, medical role. After discharging its cargo of men and equipment, the LST tank deck was transformed into a huge hospital ward with hundreds of stretchers set to receive casualties brought aboard through its bow ramp for transport back to England.

Specially trained hospital assistants,

under professional direction, served as the link between battlefield first aid and the definitive medical care available in well-staffed hospitals ashore. They provided the life support measures so crucial to survival and ultimate outcome during the 10-20 hours en route. It was a role made necessary by the unprecedented numbers of casualties wisely anticipated during the early stages of the assault, and one made possible by the proximity of south coast ports across only 100 miles of English Channel.

The concept of utilizing the LST as a hospital ship was the forerunner of our present day ambulances carrying paramedics trained and equipped as first responders, and of our physician assistants now so effectively employed in civilian as well as military care. This is the account of one young medical officer, a lieutenant junior grade (LTJG) (or, j.g.), MC, USNR who served on the LST-357, an account understandably subject to perhaps a few cobwebs among my memories of a half century ago.

## Learning the Meaning of Scrambled Eggs

FOXY-29 was the Navy's designation of medical units formed at its training center set up at Lido Beach, Long Island, NY. Each consisted of 2 doctors and 40 corpsmen, including a chief and other pharmacist mates, on down to raw recruits.

Fortuitously, I was able to team up with a medical college classmate, Dr. Henry Landaal, of Waupun, WI. Neither of us completely dry behind our professional ears, we had received our M.D. degrees less than a year previously and had our internships cut to 9 months instead of the usual 12 by the exigencies of wartime. Nor were

we exactly well versed in matters military, our total experience limited to sitting in on some ROTC classes sandwiched into an intensive academic schedule.

I freely admit to having been what was sometimes referred to in whispers as an "instant j.g.," not sure just who or how to salute. But fate had dealt me a salty old chief who helpfully steered me through the Navy minefield of paperwork and protocol. Yes, it was he who may well have saved this landlubber j.g. from being "hung from the yardarm" or worse—life in a Navy brig.

Cautiously, the chief accompanied me when we landed in England and I met on the dock someone who appeared to be an American, but dressed more formally than I was accustomed to. I waved and offered a friendly "Hi," which elicited a rather dour response. Tugging at my sleeve the chief, nearly fainting dead away, muttered something to the effect of "let's get the hell out of here, doc; that's an admiral." Needless to say, I learned what all those "scrambled eggs" on the cap and gold stripes on the sleeve nearly up to the elbow meant. Fortunately, I never knew what the admiral may have murmured.

Obviously I had much yet to learn to warrant that stripe and a half on my sleeve, much that we never saw at Lido Beach nor heard of in ROTC. (But that military lecturer was not exactly eloquent, and his lectures were not illustrated!) We were, for better or worse, all in this together, an uncertainty which itself bred a camaraderie, which helped to see us through.



Dr. Henry Landaal (right) and the author pose in England before the invasion.





A fully loaded LST-357 sets out for Omaha Beach

### Learning What NOT to Do

The month of training at Lido emphasized careful examination and followup of the patient, charting his vital signs, administration of intravenous fluids including plasma, use of morphine and other drugs such as epinephrine, splinting, and the cleansing and protection of open wounds. Often more important than learning what *to* do medically in those urgent hours is what *not* to do, a point worthy of special emphasis. The officers' wardroom became the operating room, equipped for suturing, even amputations. In the event of small arms combat on the beach, carbines were issued to enlisted PhMs (pharmacist's mates) and Colt 45s to the M.D.s (who were reassured that in event our shots missed their mark we could throw the pistol at the enemy!) In

short, the objective at Lido, continued later aboard ship, was to provide en route the most effective measures of life support and stabilization prior to the definitive care in the hospital ashore.

### The "Fish" Only Glanced Off Our Starboard Bottom

Our unit was assigned initially to a new LST, the 293, sailing in early March from New York to Halifax, where we joined a 63-ship convoy, escorted by two Canadian DEs (Destroyer Escorts). Our upper deck carried LCTs (Landing Craft Tanks), in effect, a small replica of the LST capable of delivering its cargo into shallower waters. Especially in March, the North Atlantic can bare its teeth. For 3 days our LST tossed and slid in seas up to 40 feet. Galleys closed and

even the saltiest gobs took refuge in their bunks.

Another unwelcome surprise came about halfway across. Despite our zigzag course and complete radio silence, a U-boat discovered us and unleashed a torpedo in broad daylight. Fortunately for the 293, the "fish" only glanced off our starboard bottom, exploding in the freighter alongside. Loaded with steel, her "back broken," that freighter plunged to the bottom leaving no visible survivors. Numerous depth charges ("ash cans") were tossed overboard. The only report shared with us later was that "an oil slick was seen." Our convoy continued uninterrupted, as we did. Though presumably crippled by a damaged right propeller, we could maintain the established 7-knot speed for the remainder of the 21-day crossing.

"Land Ho!" was all the more welcome, on past Northern Ireland and down the Irish Sea, around Lands End with its countryside ablaze with spring wildflowers, finally to Falmouth. And then there was that spectacle of launching our LCT as it slid off our canted deck with a gigantic splash into a quiet river. It was officially launched!

Our second brush with an enemy we had only heard and read about at home occurred at Fowey in Cornwall, where our medical unit was billeted a few days at a picturesque old English estate. There we heard for the first time a sound that would become all too familiar: the sound of a bomb dropped in the nearby countryside, where wily Britishers had erected a system of lights to simulate sights of the town at night. Awakened from sleep, we were introduced to the inside of a bombshelter, a grim place day or night. This was war, sure enough. We had arrived.

### **Stealth of the E-boats**

While the LST 293 put in for repairs, our 40-man unit was transferred to Portland-Weymouth Harbor and split up. Dr. Landaal left with half of our corpsmen to the 314. I went with the other half to an older ship, the 357, which bore the battle scars and an experienced crew from action at Sicily, Salerno, and Anzio. Its captain was LT James J. MacLeod, USNR, a school principal from Michigan, who was not only respected, but also genuinely liked by his shipmates—a high tribute for any skipper.

There in the harbor we remained with a dozen other LSTs, and the command ship, the luxury liner *Ancon*, for more than a month, broken only by one practice maneuver in the English Channel. That practice on 27 and 28 April proved tragic indeed. We sailed out and joined a convoy of LSTs from other ports along the south coast,

seemingly in a sort of diversionary display, while some of them with Army aboard were under orders to practice landings on an isolated strip of English beach. From the fragmentary reports reaching us at the time, we learned that two of those LSTs had been torpedoed by a German E-boat said to have come from its den at Cherbourg and circled to approach the convoy from the north. It was unrecognized until the actual firing. Both LSTs were destroyed. Subsequent reports of loss of life ranged up to more than 700, with untold numbers of survivors evacuated to hospitals throughout the south coast where they were warned, under threat of court-martial, not to divulge word to anyone of the tragedy. Regarding E-boats, the fastest small craft in the Channel, we were to meet them again.\*

Obvious wartime preparations went on undeterred by weather or the nighttime air raids usually referred to in the local press as "nuisance raids." Whenever searchlights could catch an enemy plane in the dark sky, antiaircraft guns of ships and shore batteries would put up a hailstorm of fire. Once we saw a plane zoom low over our ship, so low most of us agreed it must have plunged into the sea. A friendly night fighter narrowly escaped after throwing out a protest of recognition flares.

Minesweepers combed the harbor in mornings, often detonating mines which sent geysers of water into the air, giving a grim note to our next day's activities. But always the British Broadcasting Corporation (BBC) would acknowledge only that "some damage and casualties have been reported," though we might see most of

an entire block of the village virtually leveled.

After 4 years of incredible human and material destruction, our English colleagues developed a remarkable insensitivity to tragedy. They would assure us that bombs "never fall on you," for no one had ever seen a person who had been hit by a bomb." True enough! In fact, an Englishman might be reluctant to admit that they fall at all, though standing amid devastation quite unfamiliar to us from the USA. You had to like these people whose friendly welcome was genuine, to whom 4 years of all out war had imposed hardships, privation, and tragedy, whose families had been shattered as quickly and decisively as bombs destroyed the homes they lived in, leaving survivors to the interminable suspense of waiting. Theirs was an indomitable spirit. You could well understand how this small country had amassed that extensive empire that "the sun never sets on," for the Englishman is not one to give up, come what may. And somehow through it all, he instinctively shows an outward calm and a courtesy that is as unflinching as it is sincere. Their greeting "glad to see the Yanks" lifted our spirits.

### **If Barrage Balloons Were Cut, the Island Nation Would Surely Sink!**

Only in the quiet of the countryside could one get away from war and the hordes of Soldiers and Sailors from all parts of the world who had been crowded into the "Restricted Area" of the south coast. Even there you might wander into vast stores of munitions, trucks, and tanks, all with barrage balloons tethered overhead to discourage strafing, leaving one reporter to declare that "if all those balloons throughout England were cut loose, that island nation would surely sink into the sea from the sheer weight of all America had stored there."

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\*The Slapton Sands tragedy remained a secret for almost 40 years. See *Navy Medicine* May-June 1994.





On its fifth trip to Normandy, LST-357 rests high and dry on Utah Beach. Note the "barrage balloons" tethered to each ship to discourage low strafing by German aircraft.

Opportunities were given for only short trips within strict time limits to explore some of the beautiful English countryside with its neatly clipped hedgerows lined with colorful thatched roof houses surrounded by profusions of spring flowers. We learned to like what limited supplies of fish and chips could be found and even their warm beer. At an airfield near Honiton I was able to visit my flight surgeon brother, see those famous Liberator bombers and meet pilots of Britain's Royal Air Force of whom Winston Churchill said, "Never have so many owed so much to so few."

#### **An Opportunity to Study Individual Reactions to Stress**

Back aboard ship we were awakened almost nightly by sounds of bombers overhead, doubtless head-

ing to their targets such as London, Southampton, Coventry, and other urban and industrial centers to the north. Sometimes they would drop a mine or two in our harbor, or a bomb in and around Weymouth. General quarters for all hands became routine, taking an hour or so out of our night. For that period, my corpsmen and I stayed at our assigned posts in the officers' wardroom, which afforded an interesting study observing the individual reactions to stress. One man's was dermatological: he would break out with hives. Another suffered increasingly with cold sweats, tremors, and stark fear to the point of incapacitation. Both of those I ultimately had to put ashore, leaving our group down to only 18 corpsmen.

My own Achilles heel of stress was predominately gastrointestinal with

anorexia, diarrhea plus insomnia, all resulting in considerable loss of weight. Remarkably, one man was conspicuously different. He was simply bored with the whole thing, regarding it only as a bothersome inconvenience. He would put his head down on the table and doze away. Surely, *he* was the abnormal one, not we who were wound up tight, to say the least. Most of us were able to work off some of the anxiety during daytime ashore participating in sports or just sheer physical exercise, a therapy which helped us endure those weeks of anxious waiting.

*(Continued in the May-June issue)*

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Dr. Groom resides in Jacksonville, FL.

## Kathryn Van Wagner Pribram

On 22 Feb 1999, on what would have been her 78th birthday, Kathryn Van Wagner Pribram was buried at Arlington National Cemetery with full military honors. Fifty-four years after the Battle of Iwo Jima, the legacy of casualty care skill, composure, and compassion left by this pioneer flight nurse is an inspiration to all Nurse Corps officers.

A graduate of the 1942 class of St. Luke's Hospital School of Nursing in her native New York, ENS Van Wagner already had extensive experience in trauma care as assistant supervisor for nine suites of operating rooms at Jersey City Medical Center by the time she entered the Navy Nurse Corps in 1943.

Due to the rapid transformation of factories to make war material and the lack of occupational health and safety regulations, the operating rooms at the Jersey City Medical Center worked 24 hours a day handling nothing but trauma. "This prepared me for what I got into when I went to Iwo Jima. I was thankful to have been in the operating room and not just a ward nurse who would not have seen the things that I had seen," Pribram said in a 1995 (March-April) interview with *Navy Medicine*.

Brief assignments at St. Albans Naval Hospital, NY, and Naval Air Station, Norfolk, VA, preceded her selection as one of the original 12 nurses assigned to Alameda, CA, for training with the first class of flight nurses.

To qualify as a flight nurse, she had to swim the length of a swimming pool in green coveralls and boots and get out of the pool on a free-swinging ladder. She attributed 12 years of acrobatics and ballet for her ability to accomplish this feat.

In addition to basic first aid, their instructors reminded them of the danger of positive air pressure on chest wounds. However, ENS Van Wagner was already accustomed to more advanced practice such as starting intravenous fluids and blood from her work at the Jersey City Medical Center.

Van Wagner was one of the flight nurses who evacuated American POWs from the Philippines in 1945. "They were all men from Bilibid and they acted like zombies. They didn't respond when spoken to; some had lost their teeth, clumps of hair, and were barely able to walk. They looked as malnourished as those people in Africa with Kwashiorkor—stick figures with huge abdomens."



ENS Van Wagner's first of four flights to Iwo Jima was memorable. Looking down from the cockpit of the R-4D (C-47), she saw that "Enemy fire was hitting our destroyers and landing ship tanks (LSTs). I was never afraid. At 23, one doesn't think of one's mortality. We came in under that barrage and landed on the beach. The fighting was going on very close to the plane. Corpsmen were bringing the wounded in droves. Doctors took a quick look to decide whether the injured were going on this flight or the next one. When the propellers kicked up the black sand and dust that was Iwo Jima, the

wounded were bandaged with all that dust in their dressings. I knew I would have these men from 6 to 8 hours. As I took off each of the bandages I realized I had more than I could handle. For many, all I could do was sprinkle sulfa powder into the wounds and re-bandage them.

"It happened several times that I was absolutely shocked when I took the dressings off and realized what I was looking at. When these men asked me about their condition, I became an actress no matter what they asked me. I would look and say, 'Well, it's a mess but it can be fixed,' knowing full well that nothing could be done. My knowledge of anatomy and physiology was very good and my operating room experience allowed me to picture what was going to happen in the operating room when these men got there.

"I have to say that on all the flights I felt so close to each of the patients. It wasn't bonding; it wasn't love. It was a combination of apprehension for their disabilities, the fact that I was the professional responsible, and that they depended on me at a very critical time in their lives."

Van Wagner married in 1947 and remained with the Naval Reserve until 1951. She led an interesting and adventurous life with her husband Otto Pribram, an Army intelligence officer, and her daughter Janice and son Karl, and worked as an embassy nurse while her husband was assigned to Yugoslavia, Bulgaria, and Czechoslovakia. An avid communicator, she mastered German, Italian, and Serbian during these assignments.

Upon return to the United States, Kathryn Pribram resumed nursing as the night supervisor at the former Circle Terrace Hospital in Alexandria, VA. She held two Air Medals and the Navy Commendation Medal.



# Navy Medicine Research and Development Highlights

## ●Prototype Survival Software for Disabled Submarine Crews

The Submarine Force of the U.S. Navy will observe its 100th anniversary in 2000. The Submarine Force has been and remains a battle-proven, key component of America's armed forces, ready and able to silently project force in keeping the peace or going in harm's way to regain it. The force's 60,000 professional Sailors are dedicated to meeting their mission in blue waters or in littoral, regional warfare. As the Submarine Force prepares to move into the next century, the research teams at the Naval Submarine Medical Research Laboratory (NSMRL), Groton, CT, are working to ensure the safety and health of every crewmember. The focus of one current project, the Submarine Escape and Rescue EXpert software system (SEAREX), is improving the survival chances for personnel trapped in a disabled submarine. Submarines are built and operated at a high standard of safety and the probability of one sinking is extremely low. However, should an emergency occur, this software program could mean the difference between life or death of the crew. NSMRL was tasked with developing SEAREX because it was recognized that the emergency procedures necessary for survival must be driven by biomedical needs. A team of experienced military researchers and software engineers developed the system as an interactive task management program to assist the senior survivor in managing the complex and unfamiliar environment of a disabled submarine. The software presents a prioritized list of tasks. The list is displayed as icons arranged in order of urgency and importance using a traffic light color coding system. Overdue tasks are colored red, current tasks are yellow, and pending tasks are green. Routines are built into the software that request data from the senior survivor, and based on the input, the program recommends when an escape should be started. Other routines include managing toxic gases, preparing the escape trunk, and scheduling the issue of food and water. The program provides the senior survivor with the data to balance the risk of decompression sickness associated with escaping against the thermal and toxicological risks of staying in the submarine while waiting for rescue. Past readings and predications of the submarine atmosphere composition are displayed as graphics. Help screens displaying additional guidance are available in both a context-sensitive manner and as hypertext indexed referenced manuals accessible from the menu bar. Members of the submarine community have extensively tested the program and their recommendations are incorporated in the software design. For more information on research efforts at NSMRL visit the web site at <http://www.nhrc.navy.mil/nsmrl/>

## ●Navy Laboratory in Peru Celebrates 15 Years of Support to Sailors, Marines, and Soldiers

Deployed Sailors, Marines, and Soldiers can be exposed to infectious diseases; many not encountered by physicians in the United States. To study these disease threats to mission readiness, the U.S. Navy established a system of overseas laboratories, including one in Lima, Peru. In the early 1980's, an agreement between the U.S. Navy and the Peruvian Navy led to the establishment of the Naval Medical Research Center Detachment in Lima, Peru. This laboratory, the only U.S. Navy medical facility in South America, conducts medical research aimed at minimizing the impact of infectious diseases on military operations in Central and South America. This research also benefits the general Peruvian population. The Lima facility has a satellite laboratory in Iquitos, Peru, in the jungle at the head of the Amazon River. The terrain in Peru includes the vast tropical Amazonian rainforests, coastal desert plain, and the Andean Mountains and foothills. The types of infectious diseases vary considerably in each of these regions and offer unique opportunities for original research in the laboratory and challenging studies in the field. Significant accomplishments of the laboratory include defining the cause of a massive cholera outbreak in South America in the 1990's, testing potential cholera vaccines for use by deployed troops, and identifying Oropouche and Mayaro arboviruses that are threats to military operations. Researchers are currently developing new products such as malaria and dengue vaccines. Ongoing studies include research in bacterial, parasitic, and viral diseases like dengue fever, urban yellow fever, acute hepatitis, HIV/AIDS, *E. coli*, Venezuelan equine encephalitis, hantavirus infections, and leishmaniasis. A major strength of the laboratory is its network of collaborators. Within the military, the laboratory is part of a well-integrated research program involving laboratories all over the world. Researchers also work closely with civilian collaborators including scientists at the Peruvian Ministry of Health, the Cayetano Heredia University in Lima, the University of Texas' arboviral disease research program, and the University of California. Beyond basic research and field studies, researchers provide medical support for annual military exercises between Latin American and U.S. naval forces. Exercises include UNITAS, the annual 6-month deployment of U.S. Sailors and Marines around South America, and New Horizons, a series of humanitarian relief missions conducted in Peru and neighboring countries. The laboratory also provides diagnostic support to the U.S. Embassy's health unit, the Peruvian Ministry of Health, and other Peruvian and international medical institutions. —BUMED(MED-26P)



## Navy Medicine 1968



BUMED Archives

HN D.R. Howe treats a Marine for his wounds during the battle for Hue, South Vietnam.



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